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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/982,654

10/18/2001

Brian K. Kirkpatrick

TI-31459

8114

23494

7590

12/16/2003

TEXAS INSTRUMENTS INCORPORATED

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EXAMINER

KEBEDE, BROOK

ART UNIT

PAPER NUMBER

2823

DATE MAILED: 12/16/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/982,654

Applicant(s)

KIRKPATRICK ET AL.

Examiner

Brook Kebede

Art Unit

2823

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 23 September 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1,2,4,6 and 9-22 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 12-21 is/are allowed.
- 6) ☒ Claim(s) 1,2,4,6,9-11 and 22 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.  
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_ 6) ☐ Other: \_\_\_\_\_

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## DETAILED ACTION

### *Allowable Subject Matter*

1. The indicated allowability of claim 22 is withdrawn in view of the newly discovered reference(s) to Essa et al. (US/6,605,536), and . Rejections based on the newly cited reference(s) follow.

### *Claim Rejections - 35 USC § 102*

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claim 22 is rejected under 35 U.S.C. 102(e) as being anticipated by Essa et al. (US/6,605,536).

Re claim 22, Essa et al. disclose a method for fabricating an integrated circuit, comprising the steps of forming a low-k dielectric layer over a semiconductor body; treating said low-k dielectric layer with a reducing plasma; treating said low-k dielectric layer with a wet solution; wherein said wet solution comprises H<sub>2</sub>SO<sub>4</sub>; forming a resist pattern over said low-k dielectric layer; and etching said low-k dielectric layer using said resist pattern (see Figs. 1A-1F; Col. 1, line 65 – Col. 4, line 52).

### *Allowable Subject Matter*

4. Claims 1, 2, 4, 6, 9, 10-21 are allowed over prior art of record.

The following is a statement of reasons for the indication of allowable subject matter: The prior art of record neither anticipates nor renders obvious the claimed subject

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matter of the instant application as a whole either taken alone or in combination, in particular, prior art of record does not teach “treating said low-k dielectric layer to H<sub>2</sub> plasma after said step of treating low-k dielectric with wet solution and prior to forming said resist pattern,” as recited in claim 1, “plasma treating said IMD using H<sub>2</sub> and an inert gas; treating said IMD using a wet solution after said plasma treating step, as recited in claim 12, “treating said low-k dielectric layer with a reducing plasma, wherein said reducing plasma comprises a H<sub>2</sub> and Ar,” as recited in claim 20, and “treating said low-k dielectric layer with a wet solution, wherein the wet solution comprises an organic acid selected from the group consisting of citric, acetic, gallic, and oxalic,” as recited in claim 21 respectively.

Claims 2, 4, 6, 9-11, and 13-19 are also allowed as being dependent of the allowed independent base claim.

#### ***Response to Arguments***

5. Applicant's arguments with respect to claim 22 have been considered but are moot in view of the new ground(s) of rejection.

#### ***Conclusion***

6. **THIS ACTION IS MADE NON-FINAL.**

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure Tsai et al. (US/6,472,335), Shields et al. (US/6,492,257), and Eissa et al. (US/6,551,943) also disclose similar inventive subject matter.

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*Correspondence*

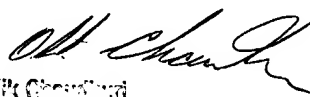
8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brook Kebede whose telephone number is (703) 306-4511. The examiner can normally be reached on 8-5 Monday to Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Olik Chaudhuri can be reached on (703) 306-2794. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7722 for regular communications and (703) 308-7722 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

Brook Kebede

*BK*  
December 14, 2003

  
Olik Chaudhuri  
Supervisory Patent Examiner  
Technology Center 2800